Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Inquiry Concerning the Deployment of	)	GN Docket No. 11-121
Advanced Telecommunications Capability to	)	
All Americans in a Reasonable and Timely	)	
Fashion, and Possible Steps to Accelerate	)	
Such Deployment Pursuant to Section 706	)	
of the Telecommunications Act of 1996, as	)	
Amended by the Broadband Data Improvement Act	)	

COMMENTS OF THE NATIONAL ASSOCIATION OF TELECOMMUNICATIONS OFFICERS AND ADVISORS TO THE EIGHTH BROADBAND PROGRESS NOTICE OF INQUIRY

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TABLE OF CONTENTS

SUMMARY

Access to affordable, reliable broadband service is an essential need and right of every American. But achieving that goal depends, in large part, upon the actions taken by the Commission. As such, the Commission should protect American consumers by defining broadband as a service that will provide reliability and affordability at the speeds necessary to allow the use of advanced applications. The Commission should adopt a new, higher minimum broadband speed threshold that will ensure businesses and consumers get the speeds and capacity needed to support the applications they need and want. In addition, the threshold should not be static; rather, it should be examined on a yearly basis to better help achieve our country's long-term broadband goals.

In addition, the Commission must take steps to make sure broadband data collection and mapping is transparent, verifiable, and updated and corrected in a timely manner. Improvements to Form 477 and the use of additional sources to obtain broadband deployment and adoption data are necessary to provide a more accurate portrait of broadband availability. Community eligibility for federal and state funding should not be tied to defective, or incomplete, data. One way to help ensure increased accuracy of the maps is to encourage the collection and use of data from local communities. As such, the Commission should develop mechanisms that allow communities to correct SBDD data records and maps in connection with their funding proposals.

Further, the Commission should take steps to establish minimum threshold speeds for wireless broadband. While such services cannot deliver the speeds and capacity that fiber networks can, their ever-increasing popularity with consumers, especially at thousands of hotspots across the nation, requires the Commission to act.

Finally, the Commission must recommend that Congress take action to remove barriers hindering municipal broadband networks. In communities where the private sector cannot or will not fill the broadband service gap, local communities should be allowed to build their own networks if providers refuse or are incapable of meeting the communications needs of their residents, businesses, and institutions

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The National Association of Telecommunications Officers and Advisors ("NATOA") submits these comments in response to the above-captioned Notice of Inquiry ("NOI"), released August 5, 2011. NATOA's membership includes (1) local government officials and staff members from across the nation whose responsibility is to develop and administer communications policy and the provision of communications services for their communities; (2) communities that operate broadband wireline and wireless infrastructure for anchor institutions – serving the needs of government, schools, libraries, first responders, and emergency support personnel; and (3) communities that have constructed, or are in the course of constructing broadband infrastructure to meet public needs, or are offering broadband services to the public within their jurisdictions. These members manage networks in urban, suburban and rural areas across America.

NATOA and its members are representatives of the American people in the most fundamental and immediate sense. We are local governments and agencies, working directly with our respective communities to ensure that they have the most advanced communications services they need to compete in a global economy and better serve the needs of their residents. At the local level, we are in the unique position to understand what true, affordable broadband access might mean for our citizens and our communities. We urge the Commission to adopt a new, appropriate, and flexible benchmark for "advanced telecommunications capability" that will enable our residents to receive and transmit high-quality voice, data, graphics, and video communications. We also urge the Commission to work closer with local communities to achieve the laudable goals it established in the National Broadband Plan

I. The Adoption of a New Minimum Broadband Speed Threshold is Imperative

America's local governments recognize broadband as critical infrastructure – a utility that is essential to economic and community development. Every year, the demand grows for faster speeds and capacity. For example, just one company - Netflix, which provides movies online – currently accounts for 22 percent of all Internet usage in North America. Our definition of broadband must keep pace with the current extraordinary growth of Internet usage and must account for – and enable – future growth and innovation. The failure to do so will hinder our ability as a nation to compete with nations abroad that have outpaced us in their deployment of high capacity broadband.

The Commission acted in the *2010 Sixth Broadband Progress Report* to raise the decade-old minimum broadband speed threshold from services in excess of 200 kbps in both directions to services enabling actual download speeds of at least 4 Mbps and upload speeds of at least 1 Mbps, a benchmark it once again relied on in the *2011 Seventh Broadband Progress Report.*

While the Commission's action was commendable, especially because the benchmark measures *actual s*peeds instead of advertised speeds – which can differ dramatically, particularly at peak usage times – the benchmark is simply too low.

The minimum broadband speed threshold should be understood in reference to the ways Americans use communications applications. The key metrics should be the applications and services that support small businesses and job creation, enhance education and healthcare delivery, and that drive consumer choices. Broadband should be understood as a connection that is sufficient in speed, capacity, and reliability such that it does not limit a user's needs. As far back as 2003, the Corporation for Education Network Initiatives in California ("CENIC") commissioned a study entitled "**ONE GIGABIT OR BUST ™ INITIATIVE -- A BROADBAND VISION FOR CALIFORNIA**". While this study is now eight years old, the research conducted for the study by Gartner, a leader in technology research and advisory services to over 10,000 clients worldwide, is still very much on point. Gartner advocated that true broadband does not begin until the network can deliver sustained 10-Mbps symmetrical data rates to the home, and requires at least 50-Mbps to deliver on its full promise of today's known applications. Gartner provided an abbreviated list of applications and the minimum sustained bandwidth speeds required to support them, as follows:

Today's World:	**Broadband Capabilities:**
Speed	Functionality
100 Kbps	Fast Internet and email, voice
1 Mbps	Music
1.5 Mbps	Broadband-quality MPEG II video
10 Mbps	One (limited) HDTV channel and two basic channels
50 Mbps	Full HDTV support; off-site computing storage

It is important to note that Gartner referred to *sustained* bandwidth speed. This is an important distinction because video is unforgiving of latency and packet loss, making it difficult or impossible for consumers to use video to support small business applications and job creation. Telework, in particular, can be an important driver of much needed jobs in the current economy, reducing the costly time and expense of out-commuting to work from rural areas and helping to reduce greenhouse gas emissions. Yet affordable, reliable access to true broadband capability is a barrier to teleworking opportunities.

The emergence of Internet-enabled televisions and multi-screen functionality into the consumer marketplace are now driving the need for higher sustained bandwidth. These devices are fueling the long heralded convergence of voice, data, and video onto a convenient, large-screen, HD device with multi-screen functionality. The multi-screen functionality, in particular, is of value for small and home-based businesses in establishing a videoconference with concurrent voice, data presentation, and HD video telepresence with remote customers and suppliers. In fact, without higher sustained bandwidth, the adoption of broadband and adoption of these new consumer electronics devices will continue to languish. These devices drive broadband adoption because higher sustained bandwidth is required for optimum use of the devices. For example, a NATOA member wishing to buy one of the new Internet-enabled televisions – which are replacing non-Internet enabled televisions from the largest television manufacturers today – was advised by a sales representative of Best Buy, a multinational retailer of technology and entertainment products and services, that, with an Internet bandwidth speed of less than 3 Mbps downstream and less than 500 Kbps upstream, the consumer should "forget it." The representative advised that a speed of 6-8 Mbps was "okay," but 20 Mbps was

recommended in order to be able to use the advanced capabilities of the device, while 50 Mbps was recommended as optimum.

It is important to protect the trust of American consumers and to establish a definition for broadband that will support the applications available in the marketplace today, as well as rapidly emerging technologies and applications for teleworking, distance learning, and telemedicine.

As we have argued before, in NATOA's view, to be considered broadband a service should:

> •Aspire toward and be scalable to the international standard for data communications: 100 Mbps to 1Gbps symmetrical, with scalability in the next decade to 10 Gbps, also an emerging international standard.
>
> • Offer consistent, high speeds capable of supporting integrated voice, video, and data applications.
>
> • Be measured by speeds actually experienced by the end users during peak times – not the theoretical "up to" speeds advertised by many providers.
>
> • Have symmetrical connections or at least robust upstream speeds to facilitate interactivity. Every person is not only a receiver of information but potentially a producer. If Americans are to be developers and creators as well as consumers, robust upstream service is imperative.
>
> • Ensure high reliability and low latency.
>
> •Enable innovation and transformative breakthrough interactive applications, such as full motion HD video conferencing, real video-on demand, and "virtual" education and healthcare.

In the near term, the minimum threshold for a service to be classified as broadband should be set at a sustained 10 Mbps, symmetric level at peak usage times, for residential and small business users, and at 1Gbps for enterprise users. This standard enables consumers to send and receive basic email, engage in file sharing, watch and record HD broadcast video channels

and Internet video, stream music, and utilize enhanced video communications. Any service offering less than this capacity provides *Internet access*, but cannot be considered "broadband." The importance of this capability is that it will enable the increased adoption of applications that lack adequate bandwidth, such as: Internet-enabled multi-screen televisions; two-way video communications; remote medical diagnosis; interactive tutoring and instruction; home video editing services; the transfer of consumer produced high definition movies and pictures; fully functional telecommuting and telework; and concurrent videopresence, data, and voice for small businesses and entrepreneurs.

NATOA believes that the current definition for upstream is particularly problematic. While cloud computing has been with us for some time, its popularity is increasing as more consumers rely on services provided by Carbonite and other companies to store data remotely and as legitimate uses for peer to peer communications proliferate. The upstream standard fails to reflect the increasing uses of social media and the fact the consumers are increasingly becoming creators and distributors of applications and content. The following table helps to illustrate the length of time it takes to transfer documents to the network:

Application	File Size	Approximate Upload Time @ 1Mbps
PowerPoint presentation	10 Mbytes	80 seconds
Transmit Instructional video	600 Mbytes	1.5 hours
Backup data to cloud	1 Gbyte	2.3 hours

At some point, certain applications increasingly being used today are not supported by the 1 Mbps standard because they would tie up the network and the long wait times will discourage their use. This standard for upstream bandwidth will inhibit the creation of new business models that exploit upstream capacity.

A. The Minimum Broadband Speed Threshold Must Not be Static

While these end user-measured speeds may still leave the United States lagging behind

other countries, they set workable short-term benchmarks based on today's applications and needs. But needs are continually changing and applications are emerging that demand far greater capacity. Therefore, our national definition of broadband must keep pace with the extraordinary growth of Internet use and must account for, and enable, future growth and innovation. This is why the Commission should avoid establishing a static point at which to gauge the progress and growth in the broadband market from one report to another. We believe potential revisions to the current threshold and periodic updates would help reach long-term national broadband goals, such as download speeds of at least 100 Mbps and actual upload speeds of at least 50 Mbps by 2020, as set forth in the National Broadband Plan. Indeed, the Commission should review broadband standards yearly. Establishing a minimum sustained actual speed of 10 Mbps symmetric as the definition of broadband would allow the Commission to ensure that broadband in the United States stays on par with international standards and keeps pace with technological developments with respect to broadband technology and application development. Indeed, the Commission should take note of emerging international standards and of the fast pace of change in those standards. Moreover a more ambitious target would lead to increased investment in fiber optic deployment and call attention to the shortcomings of current business practices that rely on treating bandwidth as a scarce resource, even when providers have the technical ability to provide higher levels of connectivity for only incremental costs.

Furthermore, establishing a higher minimum threshold will ensure that federal and state funded broadband deployment projects will provide businesses and consumers with the speeds and capacity needed to support the applications they need and want. Limiting funding to those projects in communities that use the Commission's current threshold as an eligibility factor only ensures a race to the bottom. To continue to rely on a static, arbitrarily established threshold of 4

Mbps/1 Mbps, when such speeds are not even sufficient to support streaming variety of consumer applications, is simply misguided.

B. Speed Thresholds Should be Established for Wireless Broadband

The Commission must, as part of its *2012 Eighth Broadband Progress Report*, establish a minimum broadband speed threshold for wireless. According to the CTIA, there were 270 million data-capable devices in consumers' hands in 2010 and wireless data traffic doubled from December 2009 to December 2010. In addition, CTIA reports that the US is the world's largest mobile data market; has more mobile Internet users than any other country; and 3G technology has been deployed to 98% of the US population. With this continued growth and popularity of wireless services, the Commission's need to examine the deployment of such services clearly outweighs any concerns about the accuracy of wireless speed data. Indeed, to address these concerns, the Commission could, in establishing its initial minimum wireless broadband speed threshold, rely on providers' own representations that their current 3G mobile broadband offerings are providing 3 Mbps/768 kbps. Such a threshold, of course, would also be subject to annual review and adjustment.

However, in relying on providers' own representations, the FCC should take additional steps to protect American consumers who mistakenly view smartphones, aircards, and other such wireless devices as replacements for wireline broadband. Unwary consumers should be advised, before buying smartphone devices and multi-year service plans with hefty cancellation fees, that advertised mobile broadband speeds: 1) will not be available in all locations – even those depicted in the carriers' coverage maps; 2) will not be available all of the time; 3) and will be more expensive than wireline options. In addition, consumers should be informed that dropped calls and slow connections are all too common outside the largest metro areas and that data plans

are quite expensive compared to wireline plans and are now becoming subject to bandwidth caps. Mobile broadband is a convenience technology that is a complement to, but not a replacement for, wireline broadband service (at least in the areas of the country where it works well).

Wireless spectrum is a limited resource, and wireless coverage is subject to the number of subscribers using the service, distance from a tower, and other factors inherent in wireless communications as a whole. Wireless broadband is not now and may never be an absolute substitute for wireline broadband in the foreseeable future.

II. Broadband Deployment Mapping Efforts Need Refinement

Any map is only as good as the information it contains. And while the Commission believes that the SBDD Data are the most current and best publicly available broadband deployment data, improvements in future collection, analysis, and data correction/updates must be made. Complaints have been made that some "unserved" and "underserved" areas have been inaccurately characterized as "served" on the National Broadband Map. This may be a function of the procedures used by various state entities collecting and providing the data, such as collecting the data from private providers without sufficient oversight to verify its accuracy and/or because nondisclosure requirements prohibit public scrutiny of underlying data collected. And while we have heard that consumers have the ability to notify a state broadband data entity of errors, such notifications have often gone without response or correction. Without the ability to review the underlying, aggregated, and disaggregated data points, consumers are limited to online error notification one premise at a time.

These concerns are especially true when the mapping data is used, in part, to determine federal and state funding eligibility for proposed broadband projects aimed at serving un- or

underserved communities. The reliance on what some claim to be defective – or, at the very least, incomplete – data will result in some badly needed projects being deemed ineligible for funding because they are mistakenly believed to be located in "served" communities. And while the Commission claims that the public may provide feedback on the accuracy of the maps, experience has shown this is not the case.

NATOA members representing many states have attested to the inaccuracy of state broadband maps, and the difficulty – or impossibility, of having the data corrected. For example, Yancey County, North Carolina is a small rural county with formidable, steep mountain terrain (the highest mountain east of the Rockies is locate in the county), large areas of protected state and federal lands, low density population of less than ten households per mile, and only one incorporated town in the entire county. It was classified by a state broadband authority as having 94% broadband coverage – based on the reporting of the local incumbent telephone carrier and cable company – a rate higher than the two largest metros in the state. Data provided by the carriers was not able to be verified given the resources available to the authority. In order to qualify for the National Telecommunications and Information Administration ("NTIA") and Rural Utilities Service ("RUS") broadband stimulus programs in 2009, only areas with less than 50% broadband coverage were eligible. The need for broadband infrastructure in the community was tremendous. The communities still relied on copper infrastructure that had been in the ground for over fifty years, and landline service outages were all too frequent. In order to qualify for the broadband infrastructure programs funded by the American Recovery & Reinvestment Act of 2009, citizens of the county – on their own – had to volunteer their time and money to conduct a consumer survey of broadband availability and retain a statistician to provide the survey mythology and data analysis to ensure the survey was accurate and meaningful. As a

result, the community was eligible and a locally owned cable company received a $26 million award from RUS under its Broadband Initiatives program. The official state record, however, was never corrected – even after the authority was provided with the survey results and calls and meetings took place between county leaders and volunteers and the authority.

Even more recently, the state broadband authority provided a broadband availability map funded by SBDD funding through NTIA. A resident of Orange County, North Carolina noted that his community – which received no cellular or Internet service, other than dial-up service – was characterized as served with cellular and broadband services. His wife, who is the owner of a design engineering firm, was unable to obtain cellular service or broadband service. In order to transfer her files – some of which were large CAD-based files – she had to travel 5 plus miles to be closer to a cellular tower and try to transmit her files with an air card and wireless service plan – which is a far slower and more expensive way to communicate. She ultimately had to close her business. Her husband, who is a government employee in the IT area, immediately contacted the SBDD entity via email – as instructed – to correct the record. Despite three attempts – which he tracked as delivered to the SBDD entity service – and despite the extra effort to correctly map the boundaries of the community with only dial-up and no cellular service – no change was ever made. In fact, he never received a response to his emails.

The City of Seattle provides an example of incorrect mapping data in an urban setting. The Washington State broadband map suggests that DSL service is available in all of Seattle. However, the local phone company in Seattle has admitted to City representatives that DSL service is only available in about 85% of the City. While some areas lack DSL coverage altogether, we also note that the maximum speeds available through the incumbent telco network in large parts of Seattle are an abysmal "up to" 1 Mbps down and 384 kbps up. However, the

map would indicate that all Seattle enjoys competition between landline Internet service providers.

The map also indicates that all of Seattle has access to advertised speeds of 50 Mbps or more. In reality, a significant part of Seattle, with about 25,000 homes, is served by a cable operator in bankruptcy whose highest advertised speed is only "up to" 15 Mbps and where the maximum speeds from the incumbent telco are frequently under 1 Mbps. This section of Seattle also happens to be its most diverse area in terms of race and ethnicity and the area with the highest number of residents living below the poverty line.

These examples, and others like them from other states, show that the need for verification of the data being self-reported by service providers is paramount and that oversight by the FCC is necessary to ensure verification, data updates, and corrections are timely – especially when the Commission intends to rely on such data to target broadband infrastructure support funding.

NATOA urges the Commission to develop mechanisms that allow communities seeking broadband infrastructure support funding to correct SBDD data records and maps in connection with their funding proposals. Had the RUS relied only on the state broadband authority map and report, Yancey County parents would still be driving their children far from home to do their online homework research and submission from the back seat of the family car. Teachers would still be unable to access school file servers. Small businesses would still be unable to connect with customers, suppliers, and sources of capital and expertise. And community college students would still be unable to access distance learning offerings.

One way to help ensure increased accuracy of the maps is to encourage the collection and use of data from local communities. In addition, the Commission could consider using consumer

reported data, similar to what is done at the website Open WiFi Spots, which provides a comprehensive directory of free wireless hotspots that is updated by it users.

While it is understandable to rely on provider supplied deployment information, the Commission should look at efforts to obtain deployment data from local franchising authorities ("LFAs"), municipalities, and other units of local governments and communities. These entities have the best, local knowledge of existing infrastructure and citizen access to broadband services, and are in the best position to ensure that corrections will be made. Such information may be much more granular in nature and show the true extent of deployment in a community. The following chart, recently prepared by the City of Seattle Office of Cable Communications, illustrates the extent to which many local communities track these data and make them readily available to consumers.

Seattle Internet Provider Data (June 20, 2011)

Service Provider	Service Areas Where Service	Popular Service Tiers	Downstream Speed	Monthly Pricing	Other Comments/Description/Features or Limitations
Broadstripe Residential	Downtown, Central Area, parts of Queen Anne and Capitol Hill	Lite	512 kbps	$39.95	As in all HFC systems, bandwidth is shared so speeds degrade as more users per given node go on line. Highly asymmetrical; relatively low upstream speeds. Prices do not include $6.20/mo if l easing cable modem.
		Express	Up to 15 mbps	$57.45	
Broadstripe Small Business	Downtown, Central Area, parts of Queen Anne and Capitol Hill		Up to1 mbps	$84.95	Prices quoted include voice service.
			Up to 3 mbps	$94.95	
			Up to 6 mbps	$104.95	
			Up to 8mbps	$114.95	
Comcast Residential (Comcast prices effective July 1, 2011).	All of Seattle except Central Area/Beacon Hill	Economy	Up to 1.5 mbps	$27.95/$37.95*	*price if not bundling with a cable TV or phone service. Prices do not reflect $7.00/mo cable modem lease fee if needed. Same limitations as any shared HFC network.
		Performance	Up to 12 mbps	$45.95/$57.95*	
		Blast	Up to 16 mbps	$55.95/$67.95*	
		Extreme 50	Up to 50 mbps	$111.95/$124.95*	
		Extreme 105	Up to 105 mbps	$179.95/$199.95*	

Service Provider	Service Areas Where Service	Popular Service Tiers	Downstream Speed	Monthly Pricing	Other Comments/Description/Features or Limitations
Comcast Small Business	All of Seattle except Central Area/Beacon Hill where Broadstripe is only cable option	Starter	Up to 12 mbps	$59.95	Prices are for unbundled service and do not include introductory "teaser" rates. Discounts available if bundled with voice and TV service.
		Premium	UP to 22 mbps	$99.95	
		Deluxe	Up to 50 mbps	$189.95	
		Deluxe100	Up to 100 mbps	$369.95	
Qwest (Century Link) Residential	DSL Service only available in about 85% of Seattle.	Silver	Up to 1.5	40.00**	**Price if purchased separately without bundling voice service. -Introductory 6-month "teaser" rates not included. -These are advertised speeds. Actual speeds will depend on condition of copper wire and distance from CO or data aggregator such as a DSLAM. Upstream speeds mostly under 1 mbps. 40, 20 and 12 Mbps service only available in a few select neighborhoods. In many areas top download speeds are 1Mbps and in some others 7 Mbps.
		Platinum	Up to 7 mbps	$45.00**	
		Titanium	Up to 12 mbps	$50.00**	
		Quantum	Up to 20 mbps	$60.00**	
		?	Up to 40 mbps	$70.00**	
Qwest (Century Link) Small Business	In many areas 1 or 7 Mbps is top speed available		Up to 1.5 mbps	$65 - $75*	*Higher price includes a few extra features Prices are standalone service. Discounts available for 1 2, or 3 year commitments and by bundling with voice service.
			Up to 7 mbps	$85 - $95*	
			Up to 20 mbps	$145-$155*	
			Up to 40 mbps	$180-$190*	
Clear (Home Based)	All of Seattle	4G Home Basic	Up to 4 mbps	$35.00	Service spotty in some areas. Prone to congestion and slower speeds at peak usage times. Requires equipment rental ($4.00/mo and up) or purchase of equipment.
		4G Home	Up to 7 mbps	$45.00	
Clear (Mobile)	All Seattle	4G Mobile	UP to 7 Mbps	$45.00	Different plans available
		4G/3G	Up to 7 Mbps	$55.00	
EarthLink	Only some areas	Basic	Up to1.5 Mbps	$54.95	Not a facilities-based provider. It uses cable and telco lines to provide its DSL or cable internet service. Plans listed bundled with voice service. Basic plan provides maximum of 500 voice minutes per month.
		Unlimited	Up to 1.5 Mbps	$64.95	
		Unlimited Premium	UP to 8 Mbps	$69.95	

Service Provider	Service Areas Where Service	Popular Service Tiers	Downstream Speed	Monthly Pricing	Other Comments/Description/Features or Limitations
Speakeasy	Most areas	Speakeasy ADSL	1.5 - 6mbps	Starting at $59.95	Mostly for business customers
		OneLink ADSL	Up to 15 Mbps	From 65.95-$95.95	
		SDSL	T-1 alternative	$129. 95	
AT&T (Wireless)	All	Several Data plans	600 kbps-8 mbps 3G and 4G service	$35.00 $75.00	Prices depend on data capacity and bundled voice services. Many different plans available. Typically charges $10/mo extra for every 1GB download beyond 4GB. Many factors affect actual download speeds.
Sprint (Wireless)	All	Mobile Connection Plans	3G/600kbps-1.4 mbps 4G/3mbps-7mbps	$29.99 - $99.99 (typically bundled with voice)	Many different service options in 3G and 4G. Company experiencing capital concerns and could be takeover candidate.
Verizon (Wireless)	All	Many plans	600 kbps-7 mbps. 4G could range 5-12 Mbps download.	$20.00-$80.00 (Individual data plans for 3G and 4).	Pricing depends on data capacity. Many different packages with different prices and bundles.
T-Mobile (Wireless)	All	Several plans	600 kbps-1.4 mbps	$109.00-$139.00	Recently bought out by AT&T. Price bundled with voice and text. Comcast providing backhaul services for its 4G offering
Dish Network (through Wild Blue) (Satellite)	All	Silver	512 kbps	$49.95	Relatively high cost for low levels of connectivity. Throughput rates slow down significantly during peak hours. High costs for end user equipment. High latency. Very low (kbps) upstream capability. Limited monthly download allowance. Not a viable option in Seattle market for residential or business.
		Gold	1 mbps	$69.95	
		Platinum	1.5 mbps	$79.95	
EarthLink (Satellite)	All	Basic	Up to 1mbps	$39.99	Same as above
Hughes Net (Satellite)	All	Power 150	Up to 1.5mbps	$59.99	Same as above.
		Power 200	Up to 2mbps	$89.99	
		Business class	Up to 2 mbps	$109.99	
Wild Blue (Satellite)	All	Value	512 kbps	$49.95	Same as above

In any case, the Commission must revise Form 477 in order to obtain information regarding wireline and wireless broadband subscribership levels, and, as suggested more fully in comments submitted by the Southeast Association of Telecommunications Officers and Advisors ("SEATOA") in this proceeding, the Commission must "modernize the labels associated with Form 477 broadband tiers so they comport with its new minimum standards." While such data may not be an accurate depiction of deployment, given that they are self-reported by incumbent providers and not subject to verification, it may be useful to estimate broadband adoption – an important issue the Commission needs to address. But the Commission must be cognizant that adoption rates, especially the large adoption gaps found in certain populations, do not necessarily reflect whether broadband is available in a particular area. Instead, this gap may be better explained by the lack of *affordable* broadband services, lack of access to hardware, digital literacy, long-term service contracts with high early termination fees, so on.

Finally, the Commission should consider collecting data on broadband speeds, perhaps as defined by updated Form 477 broadband tiers, and adoption rates using the American Community Survey mechanism at the Census Bureau to regularly collect and update consumer adoption statistics. The Commission should also look at ways to collect data on at-risk populations beyond those agencies that deal in broadband. Agencies that provide unemployment assistance, social services, and other similar programs are well-situated to reach the kinds of populations that are most in need of broadband.

III. Broadband Availability at Anchor Institutions and Other Hotspots

For many Americans, especially in the current economic climate, residential broadband service simply does not fit within the monthly budget. As a result, the Commission should include in its next report data concerning the availability of broadband at community anchor

institutions, such as schools and libraries, and at other hotspots such as coffee shops. While broadband services at such locations will not be as convenient or consistent as those available in one's home, they do provide access for those who cannot otherwise afford service. And the vast number of free WiFi hotspots speaks volumes of the popularity of such sites. According to Open WiFi Spots, there are currently nearly 66,000 free WiFi spots in the US. Subscribership rates alone do not tell the whole story concerning either deployment or adoption – as a result, the Commission needs to examine alternative means that consumers use to receive broadband services.

IV. The Commission's Actions Must Give Meaning to the Goals Established in the National Broadband Plan

One area of the Commission's *Seventh Broadband Progress Report* that has not received sufficient attention is the Commission's goals stated in the National Broadband Plan. Specifically, its first stated goal calls for 50 Mbps down and 25 Mbps up to 100 million American homes by 2015 – only a mere four years away – and 100 Mbps down and 50 Mbps up to 100 million American homes by 2020. A broadband definition of an actual bandwidth speed of only 4 Mbps downstream and 1 Mbps upstream does not serve to advance the goal of 50 Mbps for 100 million Americans in four years. Even 10 Mbps of symmetric service as a minimum sustained actual speed, as suggested in these comments, leaves a wide chasm between today's metric and the Commission's goal in four short years from now. Notwithstanding that NATOA and its members believe that the Commission's goals are too modest for a variety of reasons, we applaud the Commission for establishing clear markers that could help animate efforts towards making our nation a world leader in broadband. However, we have a serious problem in that these goals exist in isolation and there are no meaningful attempts in the Commission's report to measure the nation's progress towards these goals or to identify the steps and technologies that

will be necessary achieve them. We have also failed to establish additional metrics we should use to define progress towards those goals. Without them, these goals are rendered as mere abstractions and fanciful thinking. We urge the Commission to develop the correct methodologies and policies that will provide the gravitational force needed to bring these lofty goals down to earth and thus give them a real chance of being realized. We respectfully submit a few considerations that the Commission should take into account in this regard.

A. The Commission Must Begin to Look Closer at What it Must Do to Encourage Fiber Optic Cable Closer to All American Homes with the Ultimate Goal of Bringing Fiber to the Premises to All Homes

It is time to acknowledge that the only way that our country will be at the forefront of broadband technology is by beginning the process of replacing existing last mile copper lines with fiber optic cable. Those copper lines have served us well for the better part of a century. But we must recognize that a technology that still relies on sending signals by modulating an electrical current over a copper wire is more akin to the telegraph than to the Internet. Fiber is the *sine qua non* of true broadband and, without substantial progress towards more fiber deployment, we can safely conclude that the Commission's goals will not be realized. We have done much to replace the copper trunk lines and brought fiber deeper to neighborhoods, but it would be a mistake to believe that these hybrid HFC and DSL models will make us a world broadband leader by 2020 or at any time for that matter.

B. Wireless Broadband is Not a Competing Platform to a Landline Fiber Network

Wireless networks are, in effect, complementary extensions of fiber optic networks that bring mobility and that can be deployed quickly and at lower costs than a fiber to the premises network. Wireless will always be prone to capacity and interference issues and will not give rise to competitive dynamics that would lead to fiber to the home.

C. The Commission Should Encourage Providers to Increase Speeds Without Increasing Prices

A company that offers Fiber to the Premises ("FTTP") over a Passive Optical Network ("PON") can deliver up to 2.4 Gbps in the downstream direction and 1.2 Gbps upstream split among a maximum of 32 subscribers. Even in the highly unlikely event that all 32 homes supported by a given PON splitter subscribed to the service and were on line at the same time, the bandwidth that could be provided to each user would be about 75Mbps down and 37Mbps up. In reality, we know that oversubscription models work and that the 32 users on a given splitter at the same time would never happen. So, the speeds available to each user would likely be much higher – likely in excess of 100 Mbps down and 50 Mbps up – thus, meeting the Commission's goals. If the Commission were to determine that the incremental costs of providing the higher bandwidth levels were not significant, it should formulate policies to encourage companies to maximize the potential of its network. Should it conduct such an inquiry, we believe that the Commission would find that the costs for providing faster speeds are not significant and would not adversely affect the margins of the leading providers. In fact, we would argue that, in some ways, those costs are decreasing. Butter's Law tells us that the cost to transport a bit of data over a fiber cable is reduced by one-half every nine months. In that case, one could argue that providers should increase the bandwidth available to users for the same price. Or, for that matter, shouldn't the costs to the consumer be decreased if the bandwidth levels remain constant and wouldn't lower costs result in greater broadband adoption? We also note the more familiar Moore's law that tells us that the cost of the electronics used in communications networks are decreasing while their capacity is increasing. Given these developments the Commission should inquire why companies are increasing the price of Internet

connections at a time when consumers can least afford it and must rely on their Internet connections more than ever.

D. The Commission Must Recommend that Congress Remove Restrictions on Municipal Broadband Networks

One barrier that is having an immediate adverse affect on deployment, and one that the Commission has paid little attention to, is ongoing efforts by industry to preempt local government deployment of community networks. The most recent example of industry's efforts to stifle service in un- and underserved communities occurred in North Carolina, an effort forcefully criticized by Commissioner Mignon Clyburn.

The National Broadband Plan speaks approvingly of such networks and the Commission must do more to foster their continued growth. In fact, if America is to achieve the goal of 50 Mbps to 100 million Americans by 2015, an objective that is likely to overlook rural communities that have a right to essential advanced telecommunications services at parity with metropolitan communities, it is imperative that legislative barriers backed by the largest publicly-traded communications companies in the United States be removed. If, as these well-financed corporations repeatedly state, they cannot make a business case for investment in fiber-to-the-home infrastructure and provision of advanced services, then why would they block municipal infrastructure investment if, in fact, they have an opportunity – as other carriers also would - to win a contract for managed services and operations of the network?

Many Americans live in areas where there is simply no business case for a private-sector, publicly traded carrier with shareholders to satisfy to provide high-speed broadband service. As a result, forward thinking local governments, understanding the critical role that broadband plays in the economic growth and prosperity of their communities, along with the medical, educational, and other benefits such services provide, have taken it upon themselves to construct

their own community networks or to partner with nonprofit or cooperatives willing to operate the system on behalf of the local government. But such efforts are continually under attack by private providers, even when they have absolutely no intention of deploying new or upgraded services to the affected areas. To underscore the point, when a rural initiative approached a large national service provider for a public/private broadband stimulus application to deploy advanced, fiber infrastructure in a rural area, the provider's response was that even if 100% of the funding was grant funded, and even if there were no regulatory strings concerning net neutrality and open interconnection, and even if the provider was the owner of the network, the provider would still not deploy such a network – *because it could not meet its internal operating margin threshold in the area*. There are times when the private sector cannot or will not fill the service gap. Even in areas where the private sector has invested, local communities should be allowed to build their own networks if they conclude that the established private providers refuse to or are incapable of meeting the communications needs of their residents, businesses, and institutions. As NATOA noted in our Broadband Principles:

> Local geographic communities share common interests and offer the best opportunity for acceptance and growth of high capacity broadband. The right of local governments to build and operate broadband networks must not be infringed. Public agencies and community-based non-government agencies also need to have equal opportunity to participate through meaningful investments in communications infrastructure. Communities must have the freedom to meet their unique communications needs. NATOA believes that local governments and the communities they serve must be able to preserve the policy option to own and operate public broadband networks. Any existing prohibitions on local government communications initiatives must be abolished.

If the Commission ever expects to realize its broadband goals, it must recognize that we need to enhance, not diminish, the competitive dynamics that will lead to increased investment and innovation. Industry backed efforts to curtail community broadband networks are not about preventing public sector competition with the private sector – they are about preventing *any*

competition. The language of these types of bills defines broadband at the lowest speed possible and makes public sector investment in infrastructure difficult, if not impossible, even if the local government intends to partner with a private or nonprofit/cooperative provider for operation of the system.

E. The Commission Should Develop Action Plans and Milestones to Assess Progress Towards Its 2015 and 2020 Goals

NATOA proposes that the Commission include in each 706 report: a thoughtful discussion of where the US should be that year if we are to meet the NBP goals; data on where we actually are that year in deploying, adopting, and using broadband; and, if we are behind, an explanation of why that is so and recommendations for corrective measures.

V. Other Factors Affecting Deployment

While the NOI makes brief reference to barriers to broadband infrastructure investment, we do not address this matter in these initial comments. Rather, we refer the Commission to our extensive comments filed in the on-going Notice of Inquiry regarding broadband acceleration, WC Docket No. 11-59.

VI. Conclusion

Access to affordable, reliable TRUE broadband service is an essential need and right of every American, regardless of whether it promotes the profitability of the largest private carriers in the country. At a time when the United States is working to reduce its debt level and decrease spending, NATOA asserts that local governments that have the determination and resources through support mechanisms, bond issues, or by any other legitimate means to meet the needs of their citizens, schools, colleges, health care providers, public safety and government agencies, then the Commission should take action to ensure that artificial barriers to deployment are removed. Furthermore, the Commission should protect American consumers by defining

broadband only as a service that will reliably and affordably allow the usage of advanced applications that are available to large metro areas, that mobile broadband is not falsely held up as a substitute for advanced wireline services, and that broadband data collection and mapping is transparent, verifiable, and updated and corrected in a timely manner.

Respectfully submitted,

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